



Generell informasjon

Brønnbane navn	6407/7-6
Type	EXPLORATION
Formål	WILDCAT
Status	P&A
Pressemelding	lenke til pressemelding
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORWEGIAN SEA
Felt	NJORD
Funn	6407/7-6
Brønn navn	6407/7-6
Seismisk lokalisering	
Utvinningstillatelse	107
Boreoperatør	Norsk Hydro Produksjon AS
Boretillatelse	985-L
Boreinnretning	SCARABEO 6
Boredager	60
Borestart	18.10.2000
Boreslutt	16.12.2000
Frigitt dato	16.12.2002
Publiseringsdato	18.12.2002
Opprinnelig formål	WILDCAT
Gjenåpnet	NO
Innhold	GAS/CONDENSATE
Funnbrønnbane	YES
1. nivå med hydrokarboner, alder	EARLY JURASSIC
1. nivå med hydrokarboner, formasjon.	TILJE FM
Avstand, boredekk - midlere havflate [m]	26.0
Vanndybde ved midlere havflate [m]	336.0
Totalt målt dybde (MD) [m RKB]	3975.0
Totalt vertikalt dybde (TVD) [m RKB]	3971.0
Maks inklinasjon [°]	9.58
Temperatur ved bunn av brønnbanen [°C]	148
Eldste penetrerte alder	EARLY JURASSIC
Eldste penetrerte formasjon	ÅRE FM
Geodetisk datum	ED50



NS grader	64° 17' 40.66" N
ØV grader	7° 6' 16.31" E
NS UTM [m]	7131389.98
ØV UTM [m]	408271.69
UTM sone	32
NPDID for brønnbanen	4172

Brønnhistorie

General

Well 6407/7-6 is located within Njord Unit on the western flank of the Njord Field. The northwest flank structure consists of five fault blocks defined by faults trending south-southwest and north-northeast, with throw towards west. The objective for the well 6407/7-6 was to test the hydrocarbon potential of the "B-segment" on the northwest flank of the Njord field. The primary target was to test the hydrocarbon potential of the Tilje formation of the Båt Group, while the hydrocarbon potential of the Ile Formation of the Fangst Group was a secondary target. There existed also a possibility of hydrocarbons in the Upper Jurassic Melke formation of the Viking Group, and in the Lower Cretaceous Lange Formation of the Cromer Knoll Group.

Operations and results

Wildcat well 6407/7-6 was spudded with the semi-submersible installation "Scarabeo 6" on 18 October 2000. First spud failed due to boulders and high angle in the hole. After a second spud on October 19 the well was first drilled to TD at 3930 m in the Early Jurassic Åre Formation. The TD was later extended to 3975 m to get space for test equipment. The extended TD was not logged. Shallow gas was not encountered. The well was drilled with water based bentonite mud down 1231 m and with oil based mud (Versavert) from 1231 m to TD. The main result of the well was the discovery of gas-condensate in the Tilje Formation as proven by a DST and by MDT fluid samples. The well penetrated 127 m Late Jurassic, 111 m Ile Formation, and 197 m Tilje Formation. The sands encountered in the Lange Formation, the Viking Group, and the Ile Formation were water bearing, but hydrocarbon shows were observed in the approximate 20 m net Lange sandstone and increasing amounts of background gas was measured while drilling in the upper part of the Ile Formation. The Tilje Formation was saturated with a heavy gas-condensate from 3693 m down to a Gas/Water Contact at 3777 m, determined from the resistivity log. Six cores were cut in the Tilje Formation with a recovery of 98% giving a total of 129m. Horizontal Klinkenberg corrected permeability in the range of 0.02 - 12.2 mD was measured in the cores. The core porosity seldom exceeded 20%. Pressure measurements from both the Ile and the Tilje Formations indicate an approximate overpressure of 160-170 bar on the B-segment compared to the Njord East flank. MDT fluid sampling was attempted in the Tilje, Lange and the Ile formations. No samples could be taken in Lange and Ile formations due to tight formations. In the Tilje Formation five samples were retrieved from 3748 m. The short clean-up time prior to sampling caused the samples to be highly contaminated with base oil from the drilling mud (30 % & 60 % base oil). The well was plugged and abandoned as an oil discovery on 16 December 2000.

Testing

The well was production tested with a perforation interval between 3686-3770 m in the Tilje Formation. With 24 hours production the flow rate was measured to 155 000 Sm³/D gas and 220 Sm³/D oil. The GOR was 705 Sm³/Sm³.



Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
1240.00	3930.00

Borekaks tilgjengelig for prøvetaking?	YES
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Borekjerne i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	3701.0	3707.6	[m]
2	3743.0	3769.0	[m]
3	3770.5	3785.7	[m]
4	3786.0	3808.7	[m]
5	3809.0	3837.3	[m]
6	3837.4	3864.9	[m]

Total kjerneprøve lengde [m]	126.2
Kjerner tilgjengelig for prøvetaking?	YES

Kjernebilder



3701-3706m



3706-3746m



3746-3751m



3751-3756m



3756-3761m



3761-3766m



3766-3771m



3771-3776m



3776-3781m



3781-3785m



3786-3791m



3791-3796m



3796-3801m



3801-3806m



3806-3811m



3811-3816m



3816-3821m



3821-3826m



3826-3831m



3831-3836m



3836-3840m



3840-3845m



3845-3850m



3850-3855m



3855-3860m



3860-3865m

Oljeprøver i Sokkeldirektoratet

Test type	Flaske nummer	Topp dyp MD [m]	Bunn dyp MD [m]	Væske type	Test tidspunkt	Prøver tilgjengelig
DST	DST 1	3726.00	0.00		01.12.2000 - 00:00	YES

Litostratigrafi



Topp Dyb [mMD RKB]	Litostrat. enhet
362	NORDLAND GP
362	NAUST FM
1169	HORDALAND GP
1169	BRYGGE FM
1840	ROGALAND GP
1840	TARE FM
1922	TANG FM
2105	SHETLAND GP
2105	SPRINGAR FM
2142	NISE FM
2352	KVITNOS FM
2747	CROMER KNOLL GP
2747	LANGE FM
3338	VIKING GP
3338	SPEKK FM
3351	MELKE FM
3407	FANGST GP
3407	NOT FM
3448	ILE FM
3558	BÅT GP
3558	ROR FM
3684	TILJE FM
3882	ÅRE FM

Spleisede logger

Dokument navn	Dokument format	Dokument størrelse [KB]
4172	pdf	0.46

Geokjemisk informasjon

Dokument navn	Dokument format	Dokument størrelse [KB]
4172_1	pdf	1.88
4172_2	pdf	1.67





Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

Dokument navn	Dokument format	Dokument størrelse [KB]
4172_6407_7_6_COMPLETION_LOG	.PDF	1.52
4172_6407_7_6_COMPLETION_REPORT	.PDF	9.52
4172_6407_7_6_COMPLETION_REPORT_ENCL 1	.PDF	3.38
4172_6407_7_6_COMPLETION_REPORT_ENCL 2	.PDF	3.77
4172_6407_7_6_COMPLETION_REPORT_ENCL 3	.PDF	0.67
4172_6407_7_6_COMPLETION_REPORT_ENCL 4	.PDF	0.56

Borestrengtester (DST)

Test nummer	Fra dybde MD [m]	Til dybde MD [m]	Reduksjonsven til størrelse [mm]
1.0	3686	3770	16.0

Test nummer	Endelig avstengningstrykk [MPa]	Endelig strømningstrykk [MPa]	Bunnhullstrykk [MPa]	Borehullstemperatur [°C]
1.0		52.450		136

Test nummer	Olje produksjon [Sm3/dag]	Gass produksjon [Sm3/dag]	Oljetetthet [g/cm3]	Gasstyngde rel. luft	GOR [m3/m3]
1.0	220	155000	0.815		705

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
AIT IPLT /LDS APS HNGS	3093	3930
CMR ESC VSP	2900	3913
CMR+	3440	3882
CST	3125	3900
MDT	3880	3925
MSCT	0	0





MWD - CDR GR RES PWD DIR	365	3100
MWD - RAB CDR GR RES DEN PWD	3100	3930
UBI DSI	2900	3925

Foringsrør og formasjonsstyrketester

Type utforing	Utforing diam. [tommer]	Utforing dybde [m]	Brønnbane diam. [tommer]	Brønnbane dyp [m]	LOT/FIT slam eqv. [g/cm3]	Type formasjonstest
CONDUCTOR	30	446.5	36	449.0	0.00	LOT
SURF.COND.	20	1224.0	26	1229.0	1.80	LOT
INTERM.	9 5/8	3094.0	12 1/4	3100.0	1.76	LOT
OPEN HOLE		3975.0	8 1/2	3975.0	0.00	LOT

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	flytegrense [Pa]	Type slam	Dato, måling
386	1.05			WATER BASED	
392	0.00			WATER BASED	
900	0.00			OIL BASED	
1232	1.60	72.0		OIL BASED	
2541	1.60	38.0		OIL BASED	
2900	1.61	50.0		OIL BASED	
3083	1.60	44.0		OIL BASED	
3100	1.60	45.0		OIL BASED	
3205	1.60	44.0		OIL BASED	
3377	1.61	42.0		OIL BASED	
3558	1.60	33.0		OIL BASED	
3700	1.60	33.0		OIL BASED	
3709	1.62	33.0		OIL BASED	
3720	1.60	34.0		OIL BASED	
3743	1.61	34.0		OIL BASED	
3771	1.61	33.0		OIL BASED	
3786	1.61	37.0		OIL BASED	
3809	1.61	36.0		OIL BASED	
3852	1.61	36.0		OIL BASED	
3864	1.61	34.0		OIL BASED	
3975	1.61	46.0		OIL BASED	



Trykkplott

Porertrykksdataene kommer fra logging i brønnen hvis ingen annen kilde er oppgitt. I noen brønner der trykk ikke er logget, er det brukt informasjon fra formasjonstester eller brønnspar. Trykkdataene er rapportert inn til Oljedirektoratet og videre prosessert og kvalitetssikret av IHS Markit.

Dokument navn	Dokument format	Dokument størrelse [KB]
4172 Formation pressure (Formasjonstrykk)	pdf	0.29

